

AMENDMENTS TO THE CLAIMS:

This listing of claims replaces all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A method for synchronizing a base station to a mobile station, comprising:

transmitting a signal sequence $K(i)$ of length n from the base station to the mobile station,

the signal sequence $K(i)$ being formed by comprising:

repeating, n_1 times, a second signal sequence element $K_2(k)$ of length n_2 to form
a second signal sequence repeated n_1 times, the second signal sequence being and a
modulated with first signal sequence ~~element~~ elements $K_1(j)$ of length n_1 ;

wherein n_1 is equal to n_2 , and i, j and k are integers[[,]] ~~and the signal sequence~~
 ~~$K(i)$ is determined in the mobile station.~~
2. (Currently Amended) The method ~~as claimed in~~ of claim 1, wherein n is equal to 256,
 n_1 is equal to 16, and n_2 is equal to 16.
3. (Currently Amended) The method ~~as claimed in~~ of claim 1, further comprising
forming the signal sequence $K(i)$ by modulating the second signal sequence ~~$K_2(k)$~~ as follows:
$$K(i) = K_2(i \bmod n_2) * K_1(i \div n_2).$$

4. (Currently Amended) The method ~~as claimed in~~ of claim 1, further comprising:
receiving, at the mobile station, a received signal sequence E(1), wherein the signal
sequence K(i) is being contained in a the received signal sequence E(1), the signal sequence K(i)
being and is determined in the mobile station by establishing obtaining a correlation sums sum S
of the signal sequence K(i) with corresponding sections of the received signal sequence E(1)[[.]];
wherein the mobile station determines the correlation sum S by:
determining a partial correlation sum sequence TS(z) of the second signal
sequence element K2(k) being determined using corresponding parts of the received
signal sequence E(1)[[.]]; and
selecting n1 elements of the partial correlation sum sequence TS(z); and being
selected in order to calculate the correlation sum S and being multiplied
multiplying selected elements of the partial correlation sum sequence TS(z) by the first
signal sequence element elements K1(j).

5. (Currently Amended) The method ~~as claimed in~~ of claim 4, wherein selecting the n1
elements comprises further comprising selecting n1 in each of n2-th elements of the partial
correlation sum sequence TS(z) in order to calculate the correlation sum S.

6. (Currently Amended) The method ~~as claimed in~~ of claim 2 4, further comprising:
receiving, at the mobile station, a received signal sequence E(1), wherein, the signal
sequence K(i) is being contained in a the received signal sequence E(1), the signal sequence K(i)

~~being and is~~ determined in the mobile station by ~~establishing~~ obtaining a correlation sums S of the signal sequence $K(i)$ with corresponding sections of the received signal sequence $E(1)$, ~~and;~~

wherein the mobile station determines the correlation sum S by:

~~wherein determining~~ a partial correlation sum sequence $TS(z)$ for first signal sequence elements of the signal sequence $K1(j)$ ~~is determined~~ using selected elements of the received signal sequence $E(1)[[.]]$; and

multiplying $n2$ elements of the partial correlation sum sequence $TS(z)$ ~~are multiplied by the second signal sequence elements element $K2(k)$ in order to calculate the correlation sum S .~~

7. (Currently Amended) The method ~~as claimed in~~ of claim 6, further comprising selecting $n1$ in each of $n2$ -th elements of the received signal sequence $E(1)$ in order to calculate a partial correlation sum TS .

8. (Currently Amended) The method ~~as claimed in~~ of claim 9 [[4]], further comprising: storing partial correlation sums TS in the mobile station; and using the partial correlation sums in order to determine a further correlation sum S .

9. (New) The method of claim 1, further comprising:
determining, in the mobile station, the signal sequence $K(i)$ using information about the first signal sequence element $K1(j)$ and the second signal sequence element $K2(k)$.

10. (New) A base station for transmitting a synchronization sequence to synchronize the base station and a mobile station, the synchronization sequence being obtained by:

repeating, n_1 times, a second signal sequence element $K_2(k)$ of length n_2 , the second signal sequence element $K_2(k)$ being modulated with a first signal sequence element $K_1(j)$ of length n_1 , where n_1 and n_2 are equal, and j and k are integers.

11. (New) A mobile station that uses a synchronization sequence for synchronizing a base station and the mobile station, the synchronization sequence being obtained by:

repeating, n_1 times, a second signal sequence element $K_2(k)$ of length n_2 , the second signal sequence element $K_2(k)$ being modulated with a first signal sequence element $K_1(j)$ of length n_1 , where n_1 and n_2 are equal, and j and k are integers.

12. (New) A memory that stores a signal sequence $K(i)$ of length n , the signal sequence $K(i)$ being determined by:

repeating, n_1 times, a second sequence element $K_2(k)$ of length n_2 ; and
modulating a first sequence element $K_1(j)$ of length n_1 into repeated second sequence elements $K_2(k)$;

wherein n_1 is equal to n_2 , and i, j and k are integers.